

AUTOMATION AND PROCESS CONTROL

Technologies to carry out tasks or operate machinery with minimal dependence on human operators.

Status:

Over the past ten years, progress in these technologies has been slower than anticipated. However increasing needs to reduce manpower, increase quality and improve machine utilization are leading to more emphasis in the area. At the same time developments in computer science and technology have made successful real time implementations more feasible.

Likely Scenario:

During the plan period, controller and sensor technologies are expected to mandate "host" computer strategies. Real time data collection will become routine with statistical processing done on a plant wide basis (host environment.) On-line applications of artificial intelligence, neural processors and fuzzy logic process control will develop slowly and may become significant near the end of the plan period.

Alternate Scenarios:

A significant process control need (such as the manufacture of novel smoking articles) may develop requiring us to adapt or develop currently emerging technologies.

Aa significant breakthrough in process control theory or technology may occur to expedite the appearance of new commercial equipment.

Developments in smart sensors and controllers (local processors) may provide flexibility and simplicity, but no central control or statistical use.

R&D Response:

Developments should be closely monitored and evaluated for our applications as early as possible. Smart sensors, artificial intelligence and neural systems are currently under study. It is important that we develop better mechanisms for understanding and evaluating process control problems and implementing solutions.

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